

REMARKS

The Office Action dated November 19, 2004 has been carefully considered, and the amendments above together with the remarks that follow are presented in a bona fide effort to respond thereto and address all issues raised in that Action.

The abstract of the disclosure has been replaced with a new version thereof. The replacement of the abstract serves to delete the extraneous material at the top of the page and to delete the “in accord with” phrase that the Examiner found objectionable. Hence the objections to the abstract should be overcome. The replacement of the abstract also serves to reduce the word count to the 150 word limit applicable under the current rules.

In response to the objection to the disclosure, each occurrence of “accord” in the specification has been changed to “accordance” or has been deleted. Such amendments address the objections to the disclosure set forth in section 2 of the Action. A few minor clarifying amendments also have been entered in the specification.

In response to the informality objections to the claims, all occurrences of “accord” have been changed to “accordance.” In line 3 of claim 1, the second occurrence of “one or more” has been deleted; and in line 5 of claim 1, the unnecessary occurrence of “a” has been deleted. These minor revisions should overcome all of the informality objections regarding the claims.

Applicant notes with appreciation that the Examiner allowed original claims 8-11 and indicated that claim 6 would be allowable if recast in independent form. Claim 6, as amended above, now includes the text of original claim 5, and as such is now in independent form. The amended version of claim 6 includes the suggested “accordance with” language. Revised claim 6 should satisfy all applicable formal requirements and should preserve the original allowable scope. Hence, claims 6 and 8-11 should be allowable as indicated by the Examiner.

It should be noted that the amendments to the claims, to address the informality objections and to recast claim 6 in independent form, are non-narrowing. When addressing the

alleged informalities, such amendments also should be viewed as non-substantive in nature and not related to patentability of any claim.

The Office Action includes a rejection of claims 1-5 and 7 under 35 U.S.C. § 103 as unpatentable over US patent no. 5,825,809 to Sim in view of US patent no. 6,112,218 to Gandhi et al. (hereinafter Gandhi). In Sim, the rejection relies on both Fig. 1 and Fig. 5.

Fig. 1 of Sim depicts a base-band FIR filter with coefficient selection. A coefficient selector 13 compares the energy level of an input signal with a current energy level in order to detect a location in the data at which the energy level varies. Coefficient selector 13 also compares the location of the sample data with the detected location in order to select either the current energy level or the previous energy level, and it outputs the selected level as the energy level for the sample data. Coefficient selector 13 then selects a filter coefficient for each sample data depending on the selected energy level. An operator 15 converts the sign of the coefficient selected by coefficient selector 13 according to each bit of sample data. Attention is directed to column 4, lines 15-29 of Sim.

The FIR filter shown in Fig. 5 is a separate prior art filter that uses a one-bit input signal (see e.g. column 3, lines 59-60). Each sample of the input signal is one bit and merely indicates a sign. The output of the filter is obtained by converting the signs of the coefficient in accord with the 0 or 1 input value of the signal bits, using an adding/subtracting circuit and then adding the resulting values in an adder 67. Attention is directed to the "Description of the Related Art" in column 1, lines 53-62 of Sim. The circuit of Fig. 5 is not part of the Sim circuit of Fig. 1.

Gandhi discloses a digital filter in which addition operations are interleaved among first and second output sample values, so that the resulting addition may be carried out with adder circuitry of the same precision as the signal input and the signal output. The rejection cites

Gandhi for an alleged teaching to process and feed back samples of the output signal for combination with the input stream to the numeric input values for processing in the Sim filter.

The rejection of claims 1-5 and 7 over Sim and Gandhi is respectfully traversed. It is submitted that the proposed combination of Sim and Gandhi would not meet all of the requirements of any of the original independent claims, and as a result, those two patents do not render any of the rejected claims obvious in the sense of 35 U.S.C. § 103.

In general, the applied patents do not fairly suggest combining sets of input samples and output samples then scaling the combinations of samples, as disclosed in the present application. Sim multiplies a one-bit input sample with a coefficient (to adjust the sign of the coefficient). This is not a scaling of input values by different powers of a base value, e.g. different powers of 2, as in the instant disclosure. Addition of sample feedback from Gandhi, as proposed in the rejection, would not overcome this failure of the basic document by Sim.

Consider claim 1 as a first example. Claim 1 recites a step of scaling each of the plurality of respective numeric input values by a different power of a base numeric value. In the disclosed examples, scalars scale different values by different powers of 2. The rejection points to the coefficient selectors 13 of Fig. 1 of Sim to allegedly meet this requirement. The selectors 13 taken alone or together with operators 15 do not perform the claimed method step. As noted above, the coefficient selector 13 chooses a coefficient. The selector alone only selects a coefficient. An operator 15 converts the sign of the coefficient selected by coefficient selector 13 according to each bit of input sample data. Such a sign conversions of respective selected coefficients by input bits is not a scaling of the respective numeric input values by different powers of a base numeric value. Addition of feedback to Sim, from Gandhi, would still result in a method in which signs of selected coefficients are converted based on individual bits of an input. The modified operations would still not include scaling each of the respective numeric

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input values by a different power of a base numeric value, as recited in claim 1. Claim 1 therefore patentably distinguishes over the proposed combination of Sim and Gandhi. Hence, the rejection of claim 1 and dependent claim 2 is improper and should be withdrawn.

The filter of claim 3 includes means for scaling each of the plurality of respective numeric input values by a different power of a base numeric value. The proposed combination of Sim and Gandhi would utilize coefficient selectors 13 and operators 15, as in Sim. In such a combination, signs of selected coefficients are converted based on individual bits of an input, even if the input includes a combination of the input stream and feedback from the output of the filter. There is no means in the filter allegedly taught by Sim and Gandhi for scaling each respective numeric input value by a different power of a base numeric value. Independent claim 3 therefore patentably distinguishes over the proposed combination of Sim and Gandhi, and the rejection of claims 3 and 4 over those patents is improper and should be withdrawn.

Claim 5 recites a plurality of scalers. Each scaler serves to scale a respective input sample value by a different power of a base numeric value to form a respective scaled value. As such, the filter of claim 5 includes scalers for scaling the respective numeric input values by a different powers of the base numeric value. As discussed above, the proposed combination of Sim and Gandhi would utilize coefficient selectors 13 and operators 15, as in Sim. In such a combination, signs of selected coefficients are converted based on individual bits of inputs to the operators (even if feedback is added so that input bits are based in some way on the input stream and feedback of the filter output). Neither the coefficient selectors 13 nor those selectors in combination with the operators 15 are scalers for scaling respective numeric input values by different powers of a base numeric value. Independent claim 5 therefore patentably distinguishes over the proposed combination of Sim and Gandhi, and the rejection of claims 5 and 7 over those patents is improper and should be withdrawn.

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Upon withdrawal of the rejection based on the proposed combination of Sim and Gandhi, all of claims 1-5 and 7 should be patentable.

The Office Action also includes a rejection of claim 12 under 35 U.S.C. § 103 as unpatentable over the proposed combination of Sim and Gandhi, further in view of US patent no. 6,078,573 to Batalama et al. (hereinafter Batalama). This rejection also is traversed.

The citation of Batalama only adds elements of a wireless spread-spectrum receiver, such as the antenna, the A/D converter and demodulator. In the three-way combination, the filter would still be that allegedly taught by Sim and Gandhi, that is to say using the coefficient selectors 13 and operators 15, as in Sim, so that the signs of selected coefficients are converted based on individual bits of an input to the operators. In claim 12, the filter includes means for scaling each of the numeric input values by a different power of a base numeric value. The selectors and/or operators convert the signs of selected coefficients based on individual bits applied as inputs to the operators, in the receiver allegedly taught by the combination of Sim, Gandhi and Batalama. Those elements of the combination do not perform the exact same function as the means for scaling, that is to say, the elements from the combination do not scale numeric input values by different powers of a base numeric value, as in the claim. Hence, the combination does not satisfy claim 12 and does not render claim 12 obvious in the sense of 35 U.S.C. § 103. It is therefore submitted that the rejection of claim 12 is improper and should be withdrawn.

On pages 8 and 9, the Office Action includes Statements of Reasons for Allowance, one (section number 8) with regard to claim 6 and one (section number 10) with regard to claims 8-11. Entry of these Statements into the record should not be construed as any agreement with or acquiescence by Applicant in the stated reasoning. These claims have been allowed in the first Action on the merits, without any rejection or narrowing amendment. It is respectfully submitted

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that claims 6 and 8-11 should be entitled to the broadest reasonable interpretation and broadest range of equivalents that are appropriate in light of the language of the claims and the supporting disclosure, without reference to the Statements of Reasons for Allowance.

As outlined above, the amendments should overcome the informality objections to the abstract, disclosure and claim language. Also, all pending claims should be allowable over the art, either as indicated by the Examiner or for reasons given above in traversal of the art rejections. Hence, this case should now be ready to pass to issue; and Applicants respectfully request a prompt favorable reconsideration of this matter.

It is believed that this response addresses all issues raised in the November 19, 2004 Office Action. However, if any further issue should arise that may be addressed in an interview or an Examiner's amendment, it is requested that the Examiner telephone Applicant's representative at the number shown below.

To the extent necessary, if any, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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